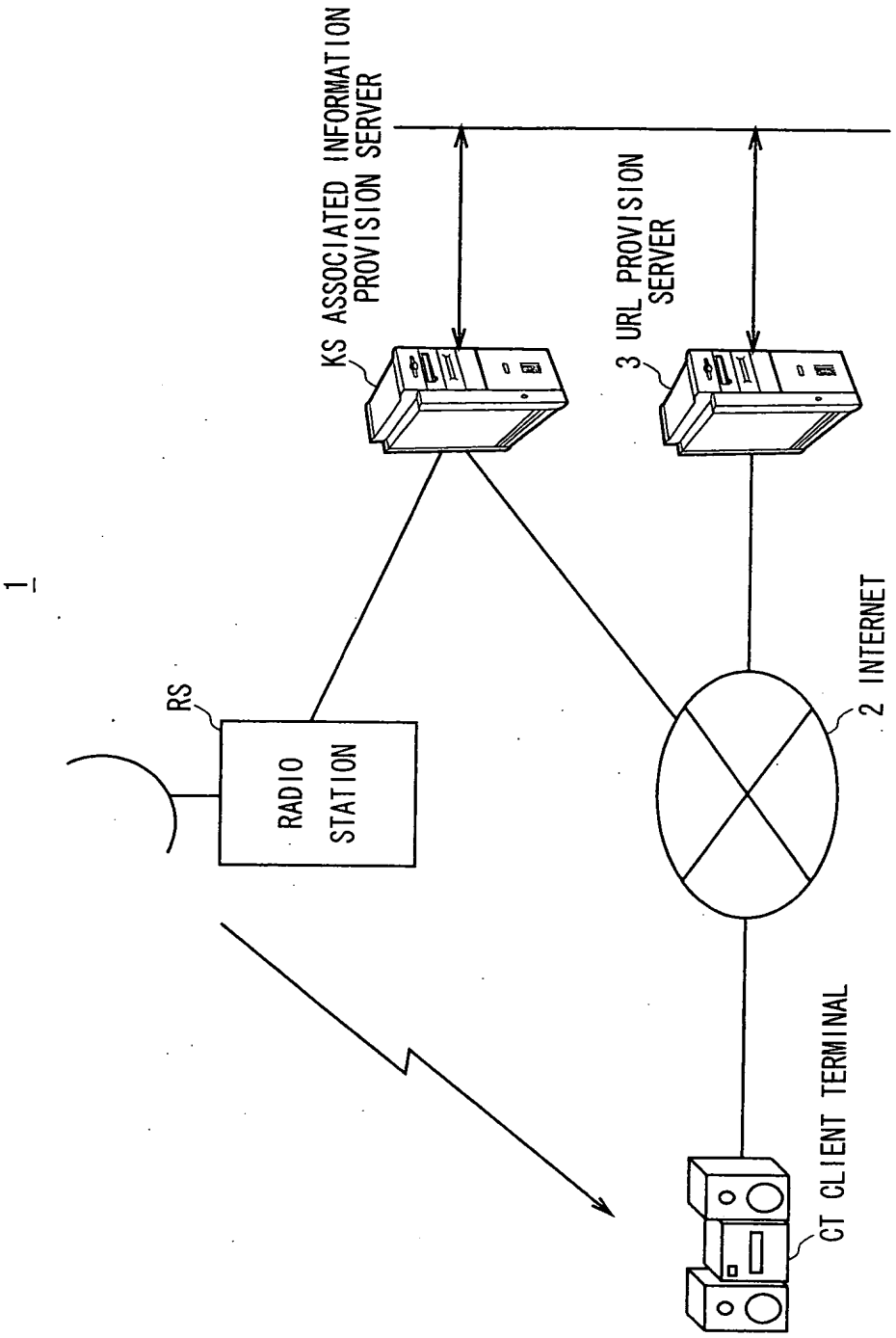
1
KS ASSOCIATED INFORMATION PROVISION SERVER
3 URL PROVISION SERVER
2 INTERNET
RS
RADIO STATION
CT CLIENT TERMINAL

FIG. 1

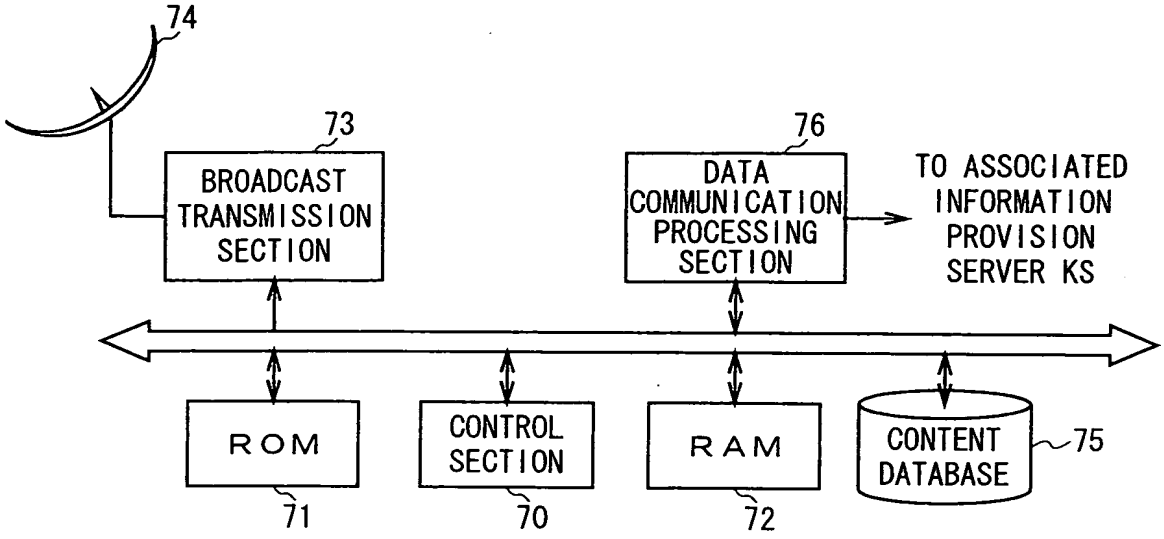
74
73
BROADCAST TRANSMISSION SECTION
76
DATA COMMUNICATION PROCESSING SECTION
TO ASSOCIATED INFORMATION PROVISION SERVER KS
ROM
71
CONTROL SECTION
70
RAM
72
CONTENT DATABASE
75

FIG. 2

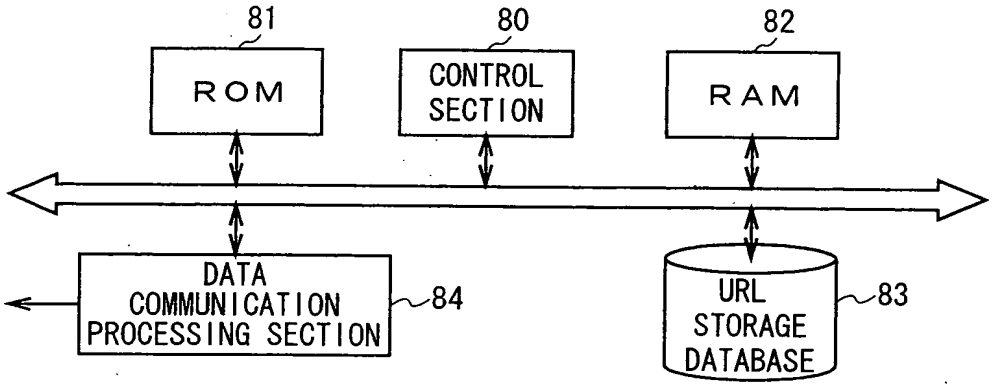
81
ROM
80
CONTROL SECTION
82
RAM
DATA COMMUNICATION PROCESSING SECTION
84
URL STORAGE DATABASE
83

FIG. 3

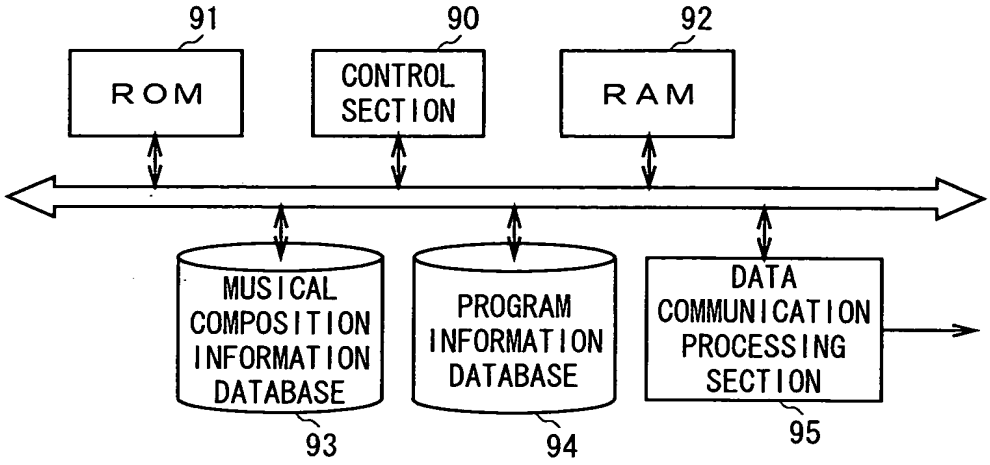
91
90
92
ROM
CONTROL SECTION
RAM
MUSICAL COMPOSITION INFORMATION DATABASE
PROGRAM INFORMATION DATABASE
DATA COMMUNICATION PROCESSING SECTION
93
94
95

FIG. 4

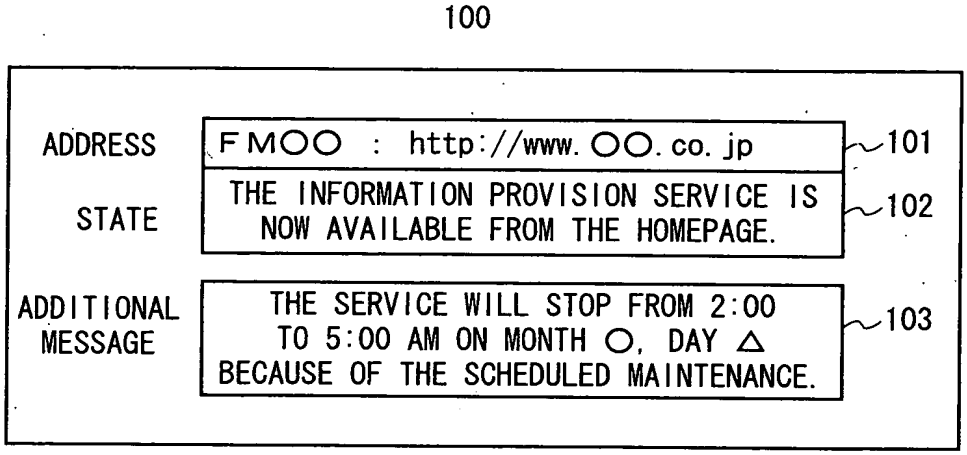
100
ADDRESS
FMOO : http://www.OO.co.jp
101
STATE
THE INFORMATION PROVISION SERVICE IS NOW AVAILABLE FROM THE HOMEPAGE.
102
ADDITIONAL MESSAGE
THE SERVICE WILL STOP FROM 2:00 TO 5:00 AM ON MONTH ○, DAY △ BECAUSE OF THE SCHEDULED MAINTENANCE.
103

FIG. 9

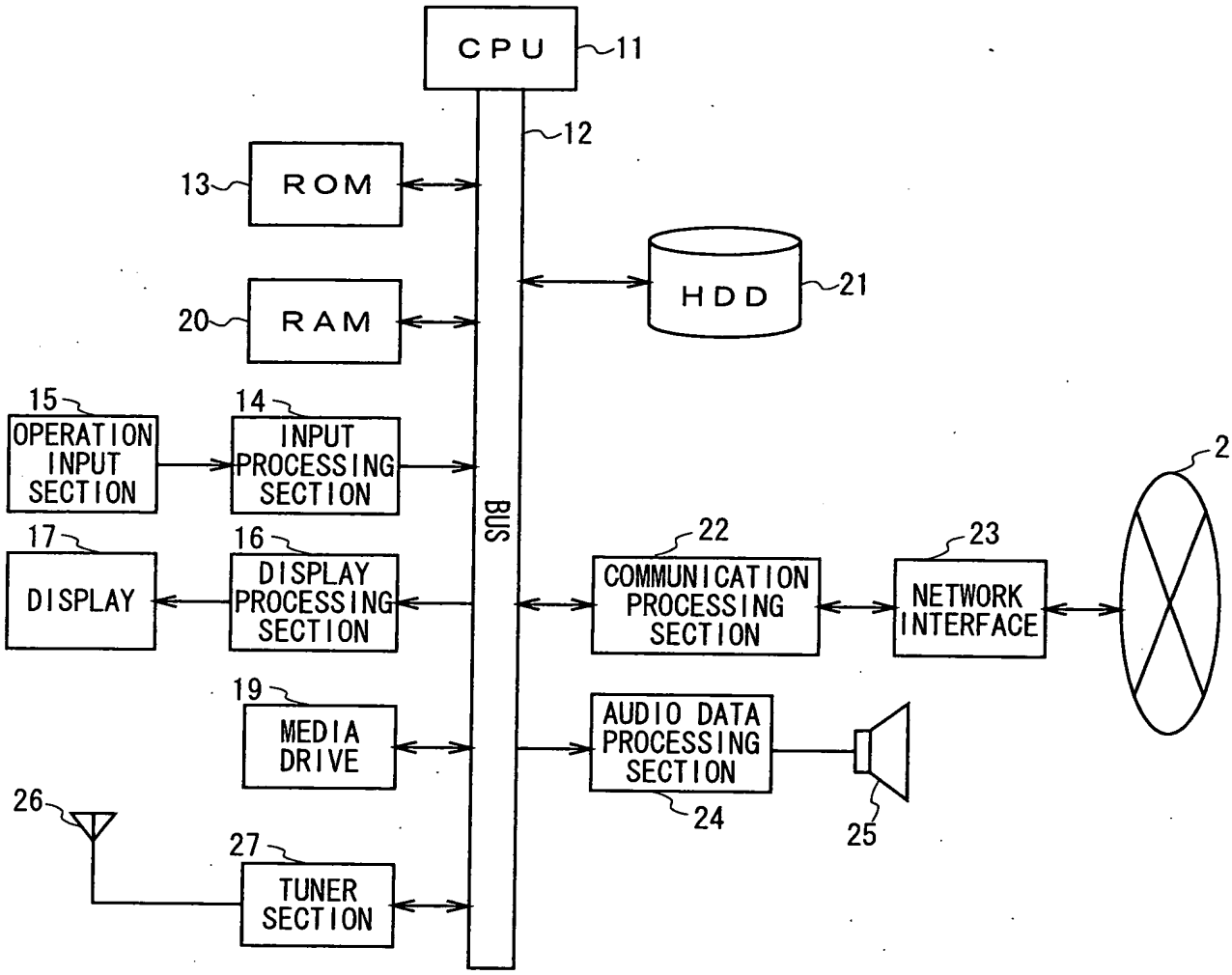
CPU
11
12
13
ROM
HDD
21
20
RAM
15
OPERATION INPUT SECTION
14
INPUT PROCESSING SECTION
BUS
2
17
DISPLAY
16
DISPLAY PROCESSING SECTION
22
COMMUNICATION PROCESSING SECTION
23
NETWORK INTERFACE
19
MEDIA DRIVE
AUDIO DATA PROCESSING SECTION
24
25
26
27
TUNER SECTION

FIG. 5

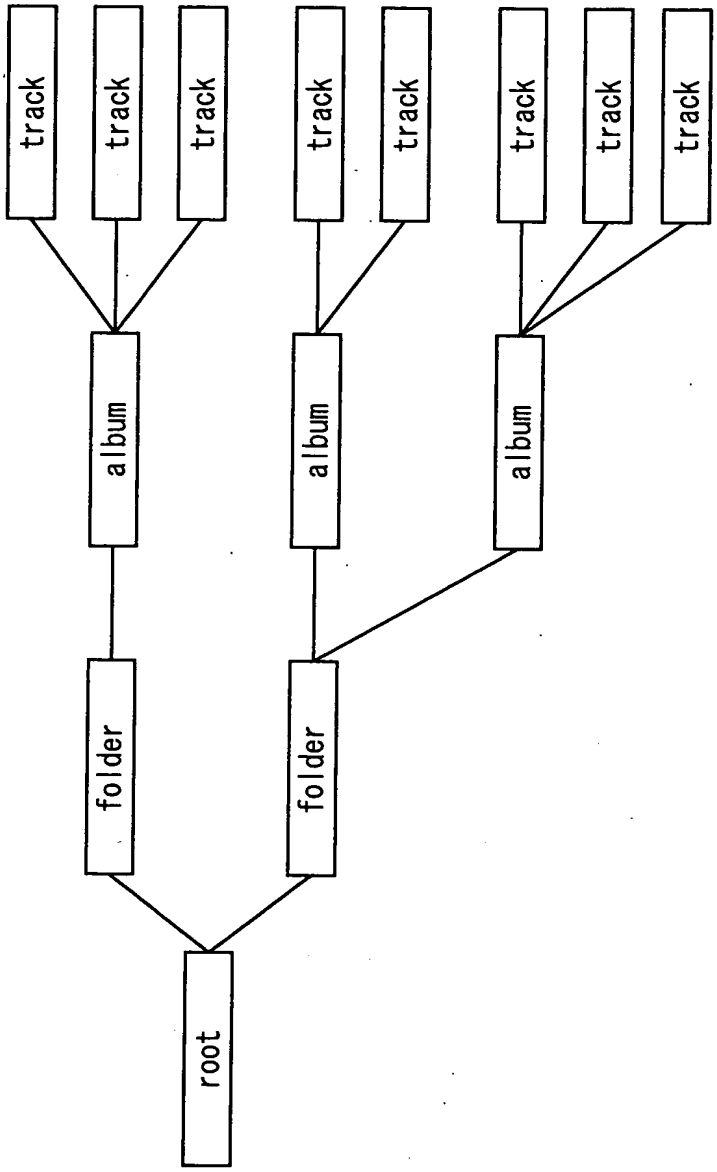
track
track
track
track
track
track
track
track
album
album
album
folder
folder
root

FIG. 6

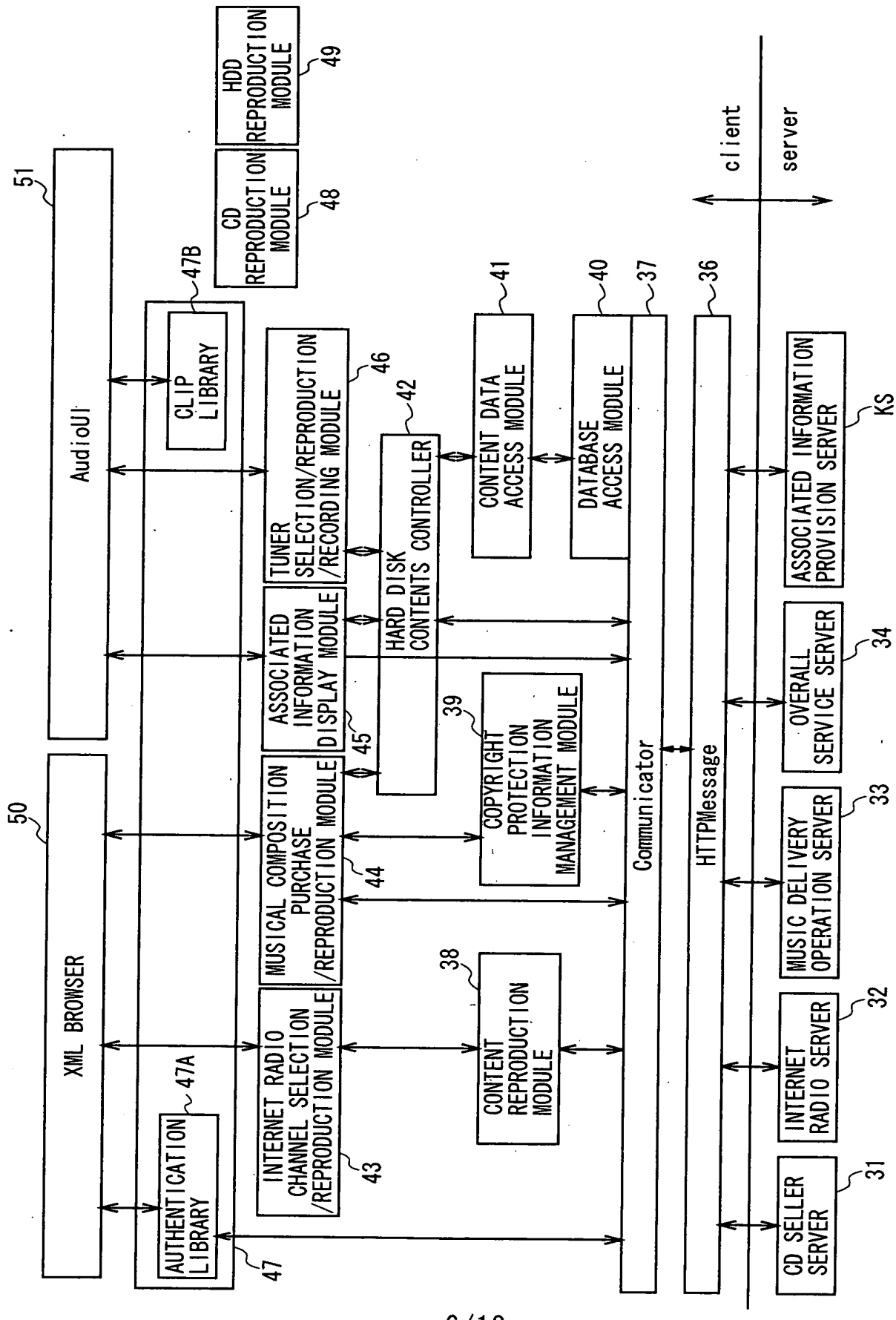
client
server
HTTPMessage
Communicator
XML BROWSER
AudioUI
AUTHENTICATION LIBRARY
CLIP LIBRARY
INTERNET RADIO CHANNEL SELECTION /REPRODUCTION MODULE
MUSICAL COMPOSITION PURCHASE /REPRODUCTION MODULE
ASSOCIATED INFORMATION DISPLAY MODULE
TUNER SELECTION/REPRODUCTION /RECORDING MODULE
CD REPRODUCTION MODULE
HDD REPRODUCTION MODULE
CONTENT REPRODUCTION MODULE
HARD DISK CONTENTS CONTROLLER
COPYRIGHT PROTECTION INFORMATION MANAGEMENT MODULE
CONTENT DATA ACCESS MODULE
DATABASE ACCESS MODULE
CD SELLER SERVER
INTERNET RADIO SERVER
MUSIC DELIVERY OPERATION SERVER
OVERALL SERVICE SERVER
ASSOCIATED INFORMATION PROVISION SERVER
KS
31
32
33
34
36
37
38
39
40
41
42
43
44
45
46
47
47A
47B
48
49
50
51

FIG. 7

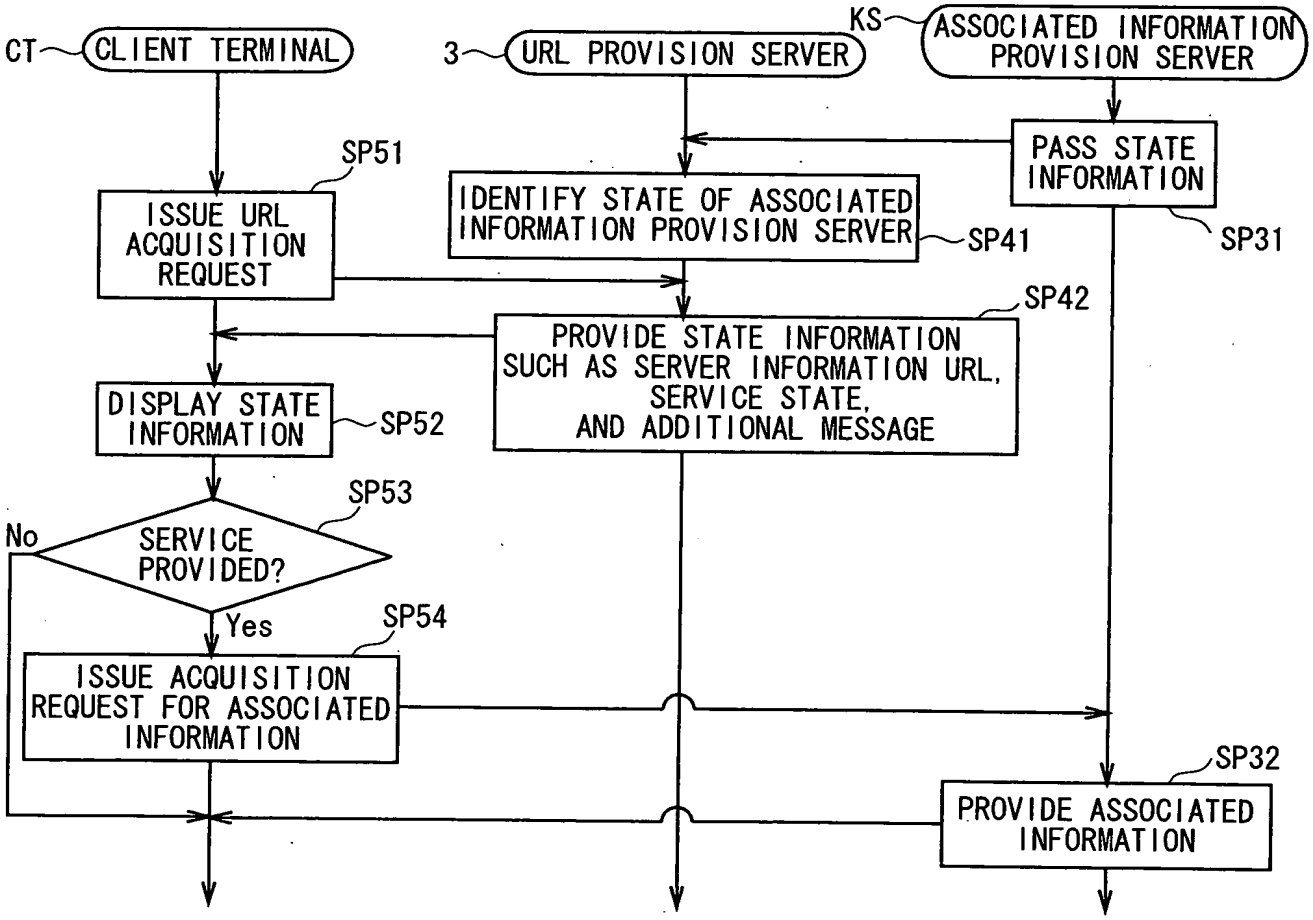
CT
CLIENT TERMINAL
3
URL PROVISION SERVER
KS
ASSOCIATED INFORMATION PROVISION SERVER
PASS STATE INFORMATION
SP31
SP51
ISSUE URL ACQUISITION REQUEST
IDENTIFY STATE OF ASSOCIATED INFORMATION PROVISION SERVER
SP41
SP42
PROVIDE STATE INFORMATION SUCH AS SERVER INFORMATION URL, SERVICE STATE, AND ADDITIONAL MESSAGE
DISPLAY STATE INFORMATION
SP52
SP53
No
SERVICE PROVIDED?
Yes
SP54
ISSUE ACQUISITION REQUEST FOR ASSOCIATED INFORMATION
SP32
PROVIDE ASSOCIATED INFORMATION

FIG. 8

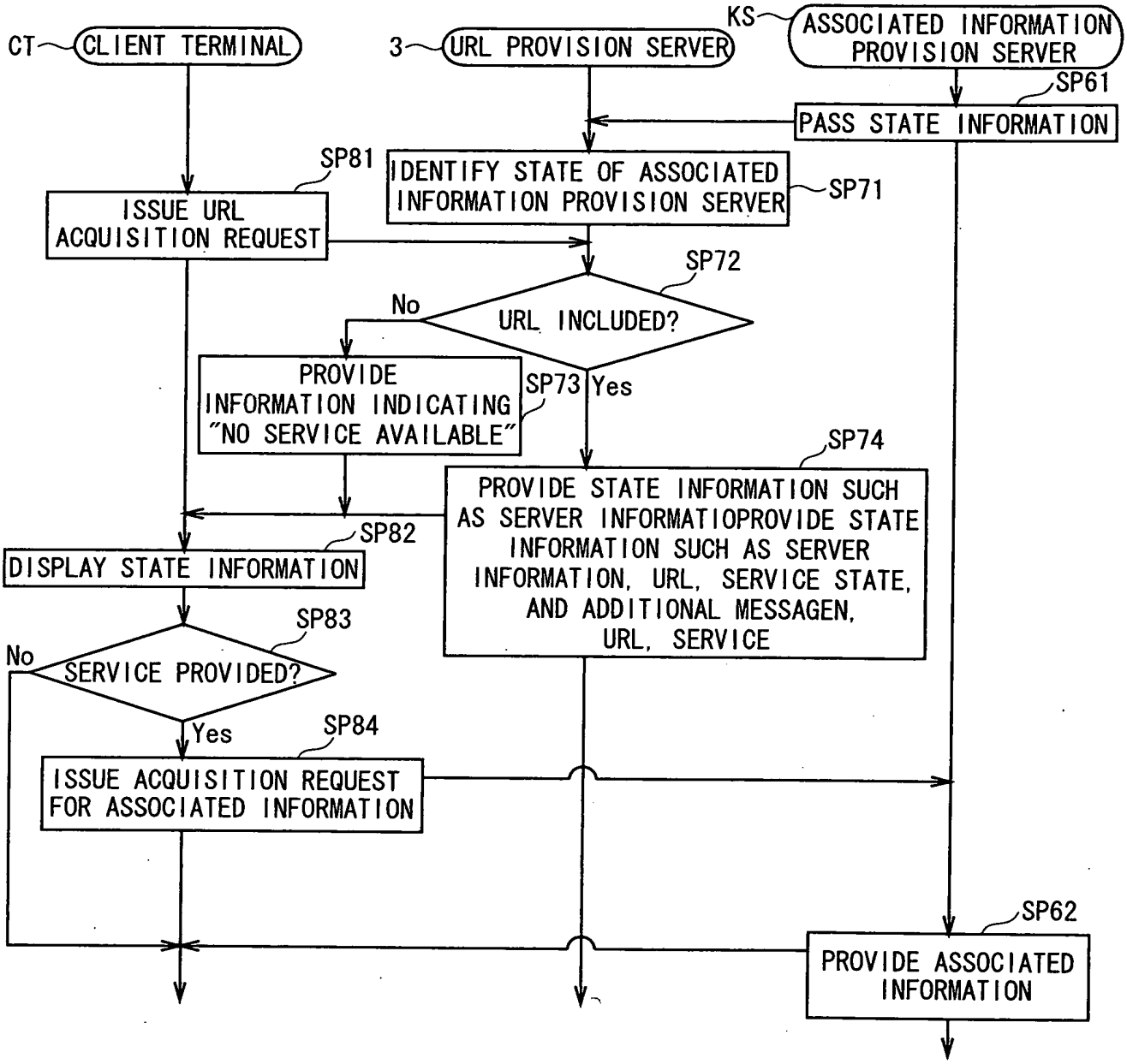
CT
CLIENT TERMINAL
3
URL PROVISION SERVER
KS
ASSOCIATED INFORMATION PROVISION SERVER
SP61
PASS STATE INFORMATION
SP81
ISSUE URL ACQUISITION REQUEST
IDENTIFY STATE OF ASSOCIATED INFORMATION PROVISION SERVER
SP71
SP72
No
URL INCLUDED?
Yes
PROVIDE INFORMATION INDICATING "NO SERVICE AVAILABLE"
SP73
SP74
PROVIDE STATE INFORMATION SUCH AS SERVER INFORMATIOPROVIDE STATE INFORMATION SUCH AS SERVER INFORMATION, URL, SERVICE STATE, AND ADDITIONAL MESSAGEN, URL, SERVICE
SP82
DISPLAY STATE INFORMATION
SP83
No
SERVICE PROVIDED?
Yes
SP84
ISSUE ACQUISITION REQUEST FOR ASSOCIATED INFORMATION
SP62
PROVIDE ASSOCIATED INFORMATION

FIG. 10

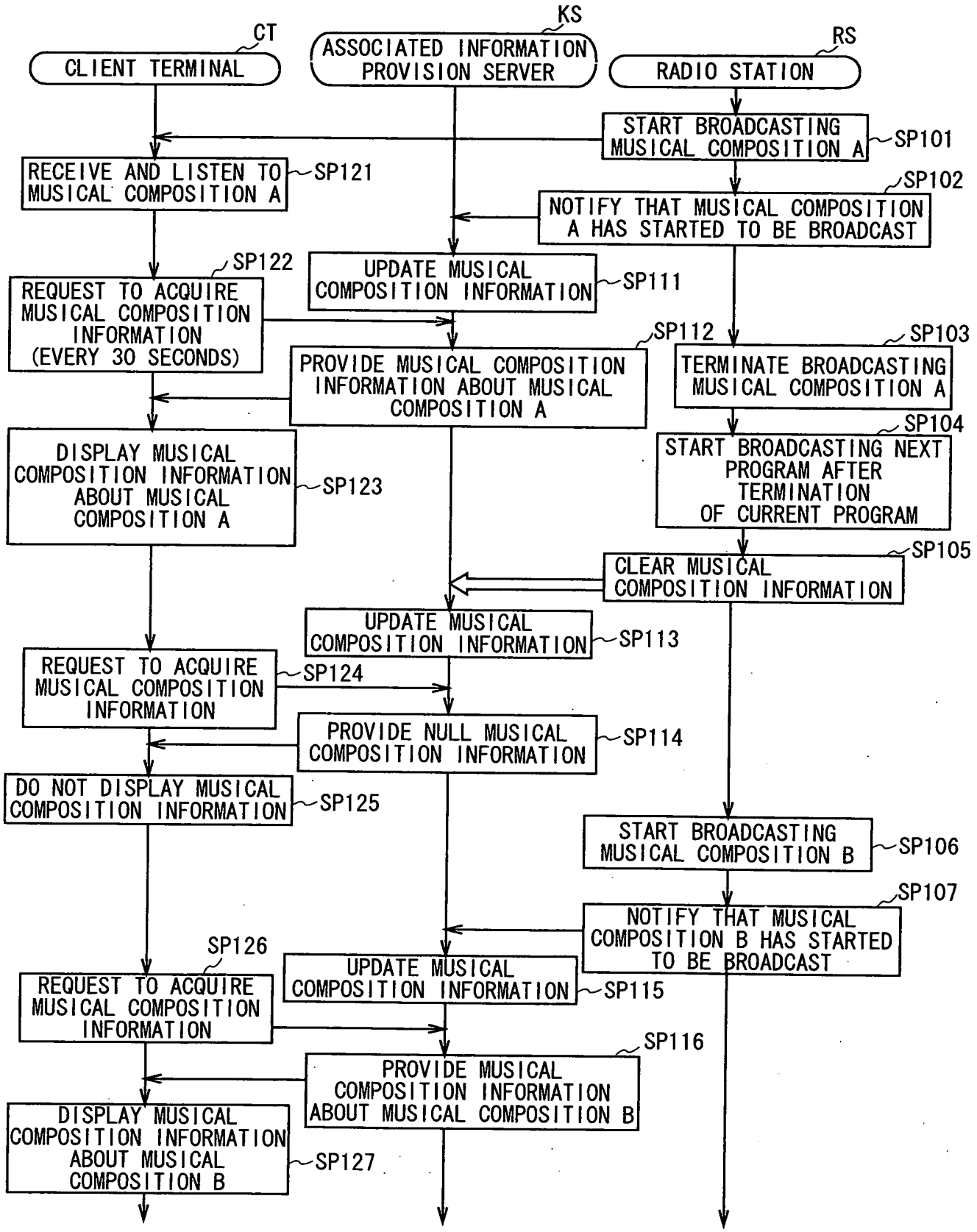
CT
CLIENT TERMINAL
KS
ASSOCIATED INFORMATION PROVISION SERVER
RS
RADIO STATION
START BROADCASTING MUSICAL COMPOSITION A
SP101
RECEIVE AND LISTEN TO MUSICAL COMPOSITION A
SP121
SP102
NOTIFY THAT MUSICAL COMPOSITION A HAS STARTED TO BE BROADCAST
SP122
REQUEST TO ACQUIRE MUSICAL COMPOSITION INFORMATION (EVERY 30 SECONDS)
UPDATE MUSICAL COMPOSITION INFORMATION
SP111
SP112
PROVIDE MUSICAL COMPOSITION INFORMATION ABOUT MUSICAL COMPOSITION A
SP103
TERMINATE BROADCASTING MUSICAL COMPOSITION A
SP104
START BROADCASTING NEXT PROGRAM AFTER TERMINATION OF CURRENT PROGRAM
DISPLAY MUSICAL COMPOSITION INFORMATION ABOUT MUSICAL COMPOSITION A
SP123
SP105
CLEAR MUSICAL COMPOSITION INFORMATION
UPDATE MUSICAL COMPOSITION INFORMATION
SP113
REQUEST TO ACQUIRE MUSICAL COMPOSITION INFORMATION
SP124
PROVIDE NULL MUSICAL COMPOSITION INFORMATION
SP114
DO NOT DISPLAY MUSICAL COMPOSITION INFORMATION
SP125
START BROADCASTING MUSICAL COMPOSITION B
SP106
SP107
NOTIFY THAT MUSICAL COMPOSITION B HAS STARTED TO BE BROADCAST
SP126
REQUEST TO ACQUIRE MUSICAL COMPOSITION INFORMATION
UPDATE MUSICAL COMPOSITION INFORMATION
SP115
SP116
PROVIDE MUSICAL COMPOSITION INFORMATION ABOUT MUSICAL COMPOSITION B
DISPLAY MUSICAL COMPOSITION INFORMATION ABOUT MUSICAL COMPOSITION B
SP127

FIG. 11

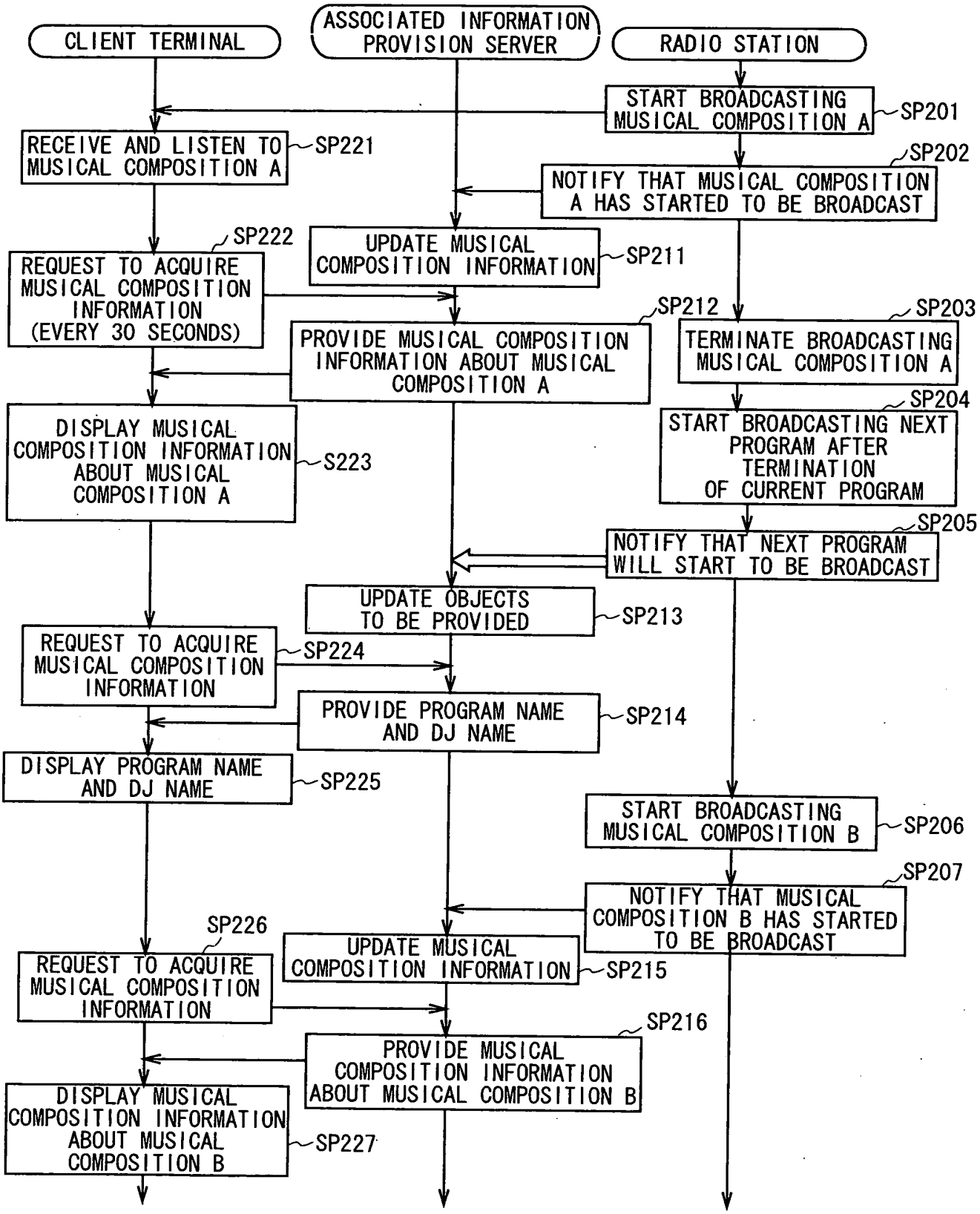
CLIENT TERMINAL
ASSOCIATED INFORMATION PROVISION SERVER
RADIO STATION
START BROADCASTING MUSICAL COMPOSITION A
SP201
RECEIVE AND LISTEN TO MUSICAL COMPOSITION A
SP221
SP202
NOTIFY THAT MUSICAL COMPOSITION A HAS STARTED TO BE BROADCAST
SP222
REQUEST TO ACQUIRE MUSICAL COMPOSITION INFORMATION (EVERY 30 SECONDS)
UPDATE MUSICAL COMPOSITION INFORMATION
SP211
SP212
SP203
PROVIDE MUSICAL COMPOSITION INFORMATION ABOUT MUSICAL COMPOSITION A
TERMINATE BROADCASTING MUSICAL COMPOSITION A
SP204
DISPLAY MUSICAL COMPOSITION INFORMATION ABOUT MUSICAL COMPOSITION A
S223
START BROADCASTING NEXT PROGRAM AFTER TERMINATION OF CURRENT PROGRAM
SP205
NOTIFY THAT NEXT PROGRAM WILL START TO BE BROADCAST
UPDATE OBJECTS TO BE PROVIDED
SP213
REQUEST TO ACQUIRE MUSICAL COMPOSITION INFORMATION
SP224
PROVIDE PROGRAM NAME AND DJ NAME
SP214
DISPLAY PROGRAM NAME AND DJ NAME
SP225
START BROADCASTING MUSICAL COMPOSITION B
SP206
SP207
NOTIFY THAT MUSICAL COMPOSITION B HAS STARTED TO BE BROADCAST
SP226
UPDATE MUSICAL COMPOSITION INFORMATION
SP215
REQUEST TO ACQUIRE MUSICAL COMPOSITION INFORMATION
SP216
PROVIDE MUSICAL COMPOSITION INFORMATION ABOUT MUSICAL COMPOSITION B
DISPLAY MUSICAL COMPOSITION INFORMATION ABOUT MUSICAL COMPOSITION B
SP227

FIG. 12

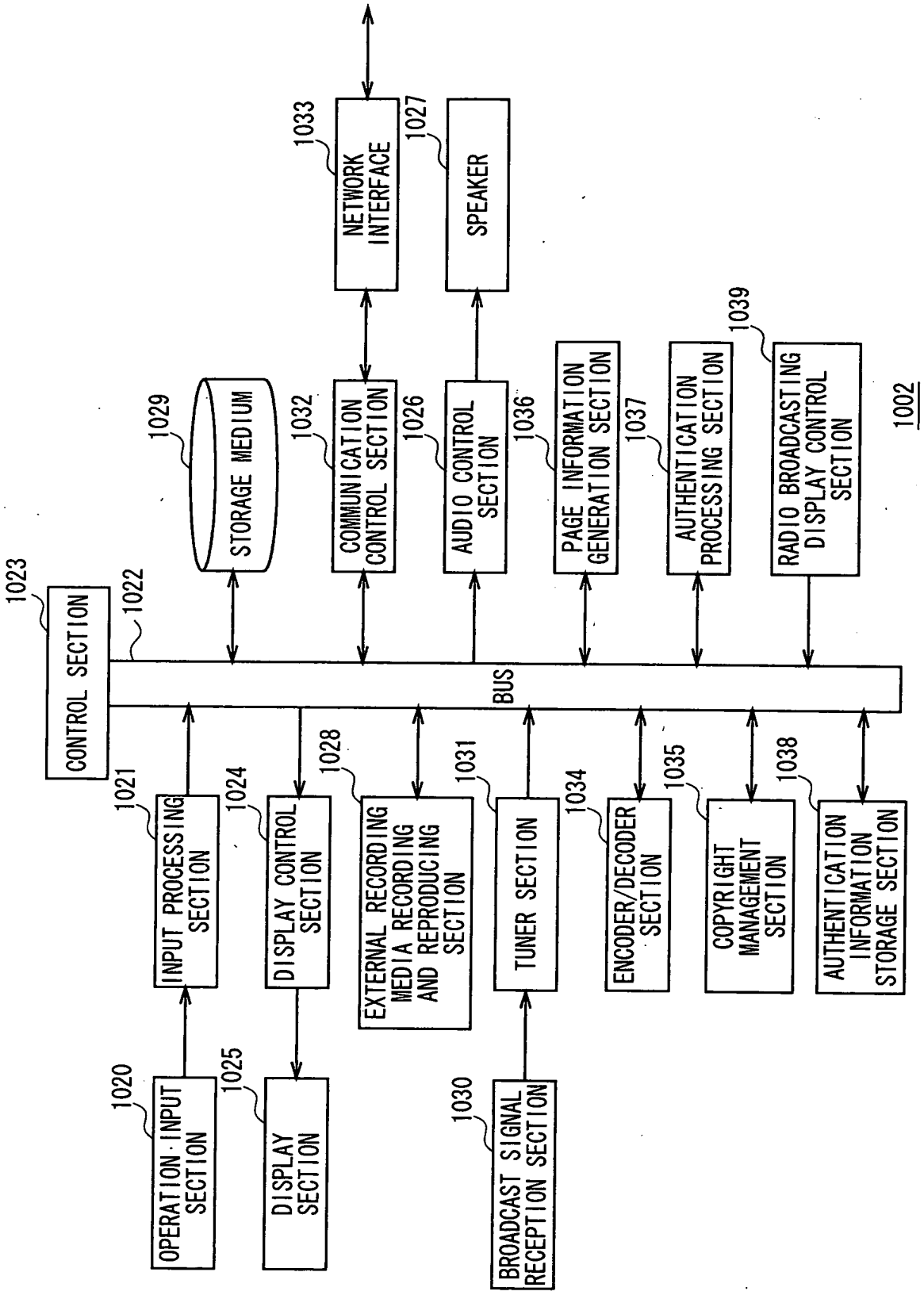
1002
CONTROL SECTION
1023
1022
BUS
STORAGE MEDIUM
1029
COMMUNICATION CONTROL SECTION
1032
AUDIO CONTROL SECTION
1026
PAGE INFORMATION GENERATION SECTION
1036
AUTHENTICATION PROCESSING SECTION
1037
RADIO BROADCASTING DISPLAY CONTROL SECTION
1039
NETWORK INTERFACE
1033
SPEAKER
1027
INPUT PROCESSING SECTION
1021
DISPLAY CONTROL SECTION
1024
EXTERNAL RECORDING MEDIA RECORDING AND REPRODUCING SECTION
1028
TUNER SECTION
1031
ENCODER/DECODER SECTION
1034
COPYRIGHT MANAGEMENT SECTION
1035
AUTHENTICATION INFORMATION STORAGE SECTION
1038
OPERATION·INPUT SECTION
1020
DISPLAY SECTION
1025
BROADCAST SIGNAL RECEPTION SECTION
1030

FIG. 13

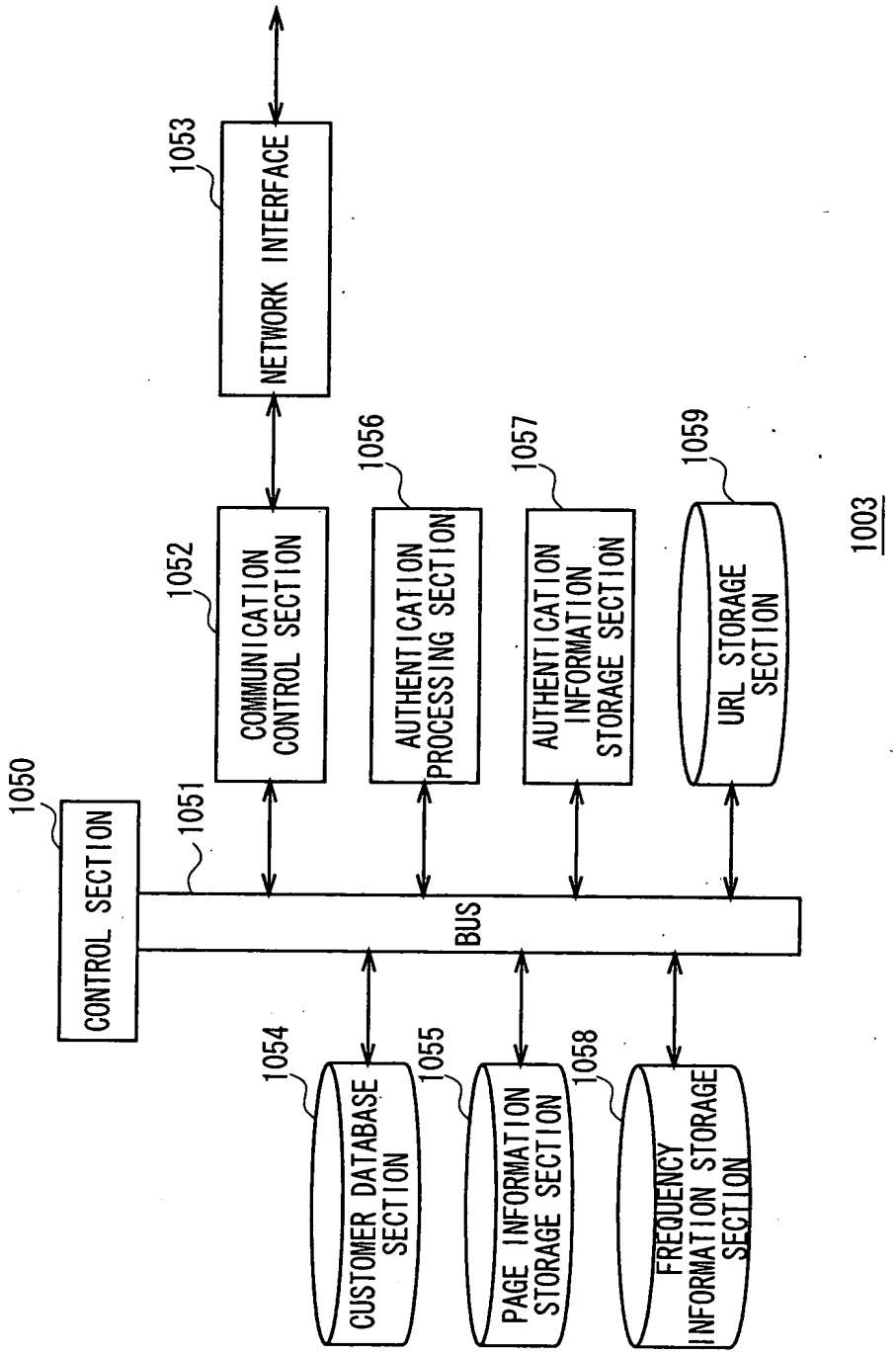
1003
1050
CONTROL SECTION
1051
BUS
1052
COMMUNICATION CONTROL SECTION
1053
NETWORK INTERFACE
1054
CUSTOMER DATABASE SECTION
1055
PAGE INFORMATION STORAGE SECTION
1056
AUTHENTICATION PROCESSING SECTION
1057
AUTHENTICATION INFORMATION STORAGE SECTION
1058
FREQUENCY INFORMATION STORAGE SECTION
1059
URL STORAGE SECTION

FIG. 14

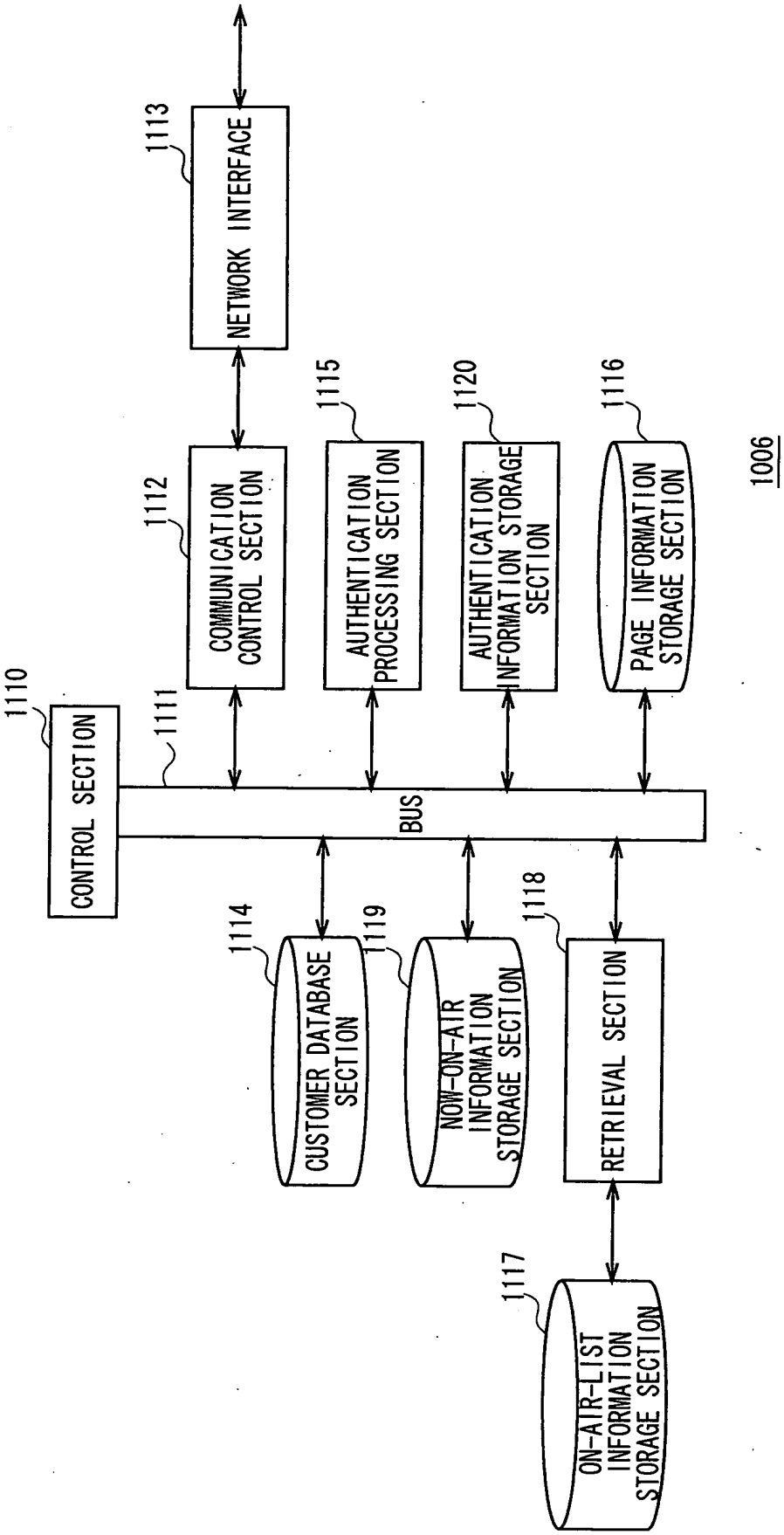
1006
1110
CONTROL SECTION
1111
BUS
1112
COMMUNICATION CONTROL SECTION
1113
NETWORK INTERFACE
1114
CUSTOMER DATABASE SECTION
1115
AUTHENTICATION PROCESSING SECTION
1116
PAGE INFORMATION STORAGE SECTION
1117
ON-AIR-LIST INFORMATION STORAGE SECTION
1118
RETRIEVAL SECTION
1119
NOW-ON-AIR INFORMATION STORAGE SECTION
1120
AUTHENTICATION INFORMATION STORAGE SECTION

FIG. 15

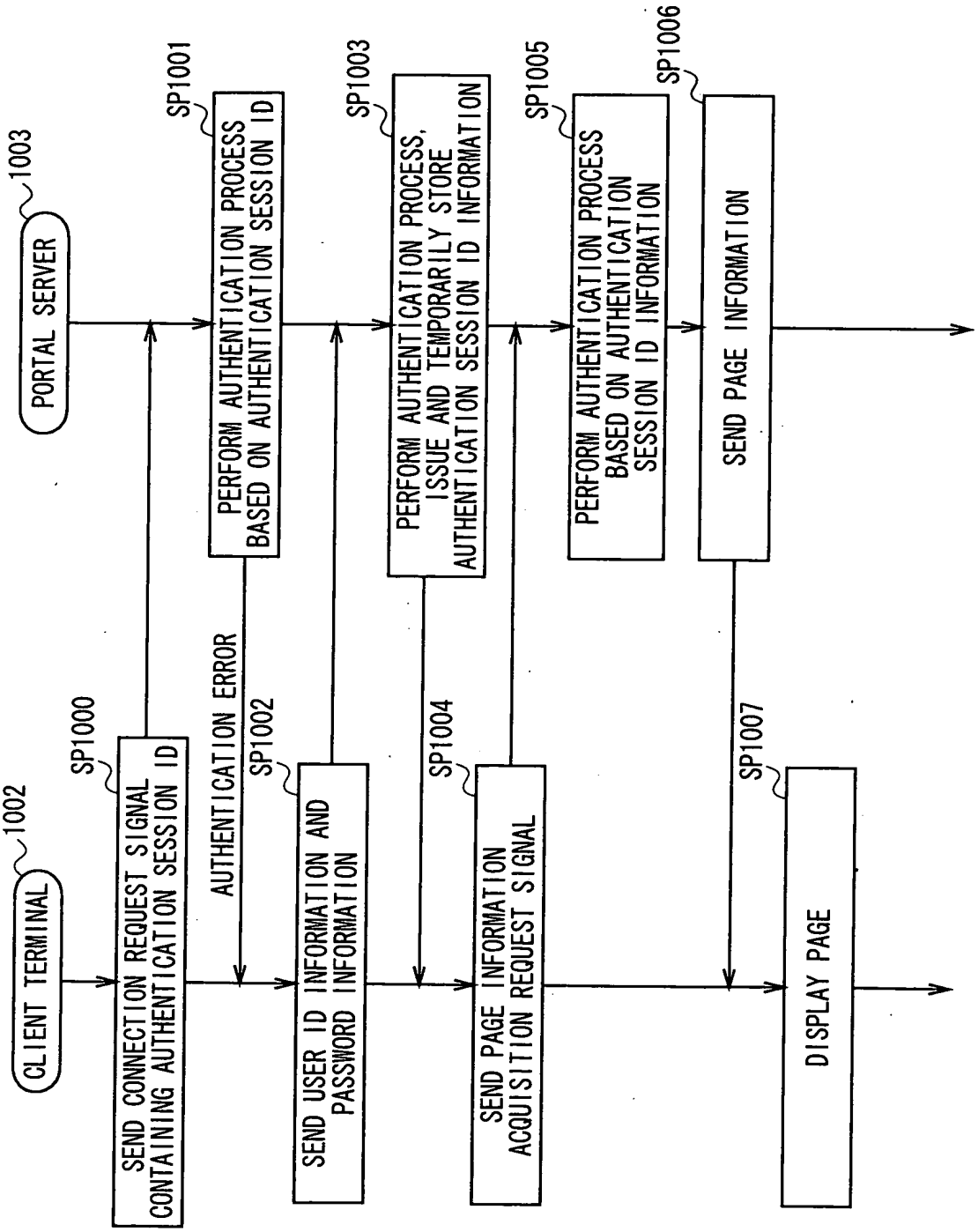
CLIENT TERMINAL
1002
PORTAL SERVER
1003
SP1000
SEND CONNECTION REQUEST SIGNAL CONTAINING AUTHENTICATION SESSION ID
SP1001
PERFORM AUTHENTICATION PROCESS BASED ON AUTHENTICATION SESSION ID
AUTHENTICATION ERROR
SP1002
SEND USER ID INFORMATION AND PASSWORD INFORMATION
SP1003
PERFORM AUTHENTICATION PROCESS, ISSUE AND TEMPORARILY STORE AUTHENTICATION SESSION ID INFORMATION
SP1004
SEND PAGE INFORMATION ACQUISITION REQUEST SIGNAL
SP1005
PERFORM AUTHENTICATION PROCESS BASED ON AUTHENTICATION SESSION ID INFORMATION
SP1006
SEND PAGE INFORMATION
SP1007
DISPLAY PAGE

FIG. 16

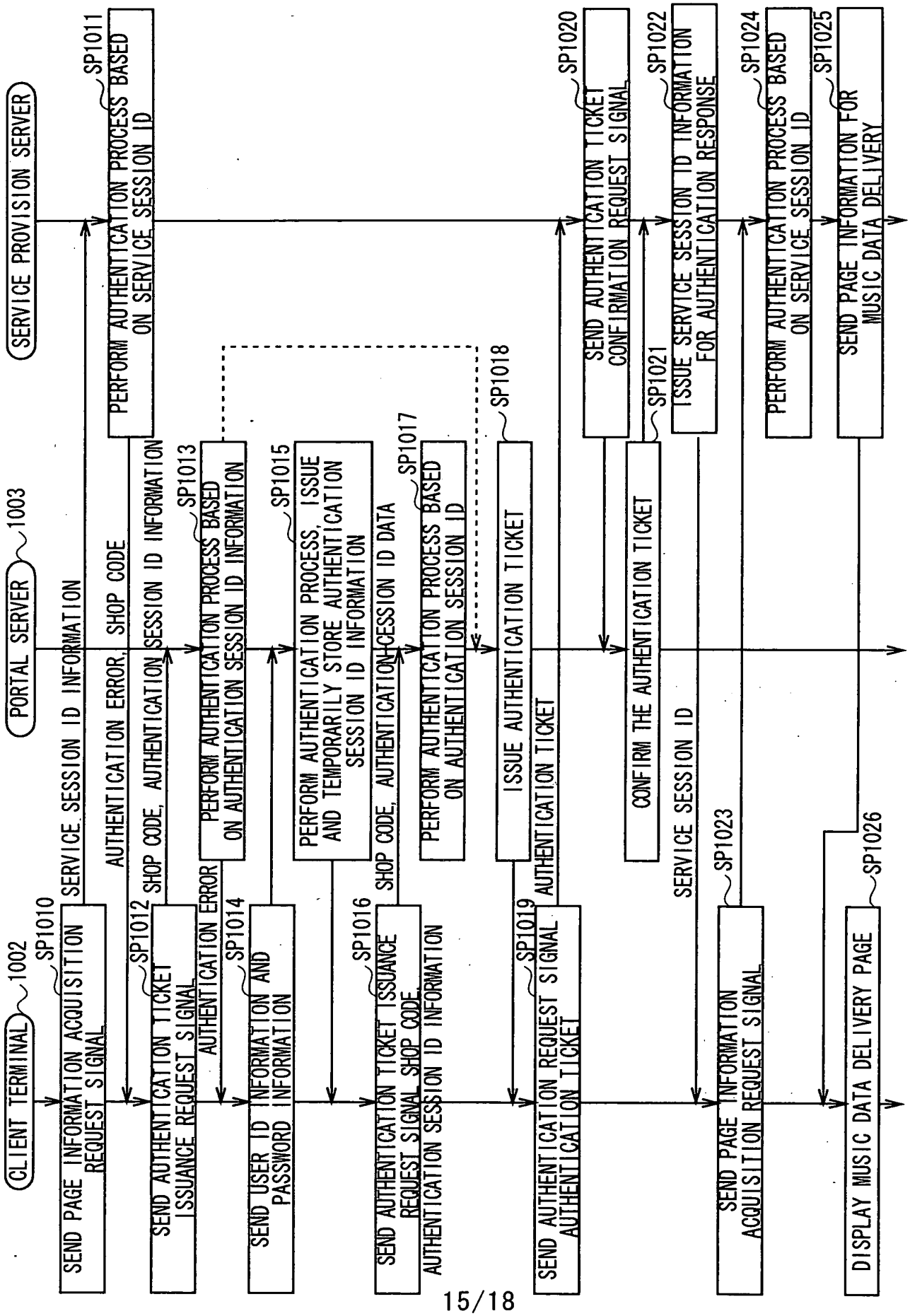
CLIENT TERMINAL
1002
PORTAL SERVER
1003
SERVICE PROVISION SERVER
SEND PAGE INFORMATION ACQUISITION REQUEST SIGNAL
SP1010
SERVICE SESSION ID INFORMATION
PERFORM AUTHENTICATION PROCESS BASED ON SERVICE SESSION ID
SP1011
AUTHENTICATION ERROR, SHOP CODE
SEND AUTHENTICATION TICKET ISSUANCE REQUEST SIGNAL
SP1012
SHOP CODE, AUTHENTICATION SESSION ID INFORMATION
PERFORM AUTHENTICATION PROCESS BASED ON AUTHENTICATION SESSION ID INFORMATION
SP1013
AUTHENTICATION ERROR
SEND USER ID INFORMATION AND PASSWORD INFORMATION
SP1014
PERFORM AUTHENTICATION PROCESS, ISSUE AND TEMPORARILY STORE AUTHENTICATION SESSION ID INFORMATION
SP1015
SHOP CODE, AUTHENTICATION SESSION ID DATA
SEND AUTHENTICATION TICKET ISSUANCE REQUEST SIGNAL SHOP CODE, AUTHENTICATION SESSION ID INFORMATION
SP1016
PERFORM AUTHENTICATION PROCESS BASED ON AUTHENTICATION SESSION ID
SP1017
ISSUE AUTHENTICATION TICKET
SP1018
AUTHENTICATION TICKET
SEND AUTHENTICATION REQUEST SIGNAL AUTHENTICATION TICKET
SP1019
SEND AUTHENTICATION TICKET CONFIRMATION REQUEST SIGNAL
SP1020
CONFIRM THE AUTHENTICATION TICKET
SP1021
ISSUE SERVICE SESSION ID INFORMATION FOR AUTHENTICATION RESPONSE
SP1022
SERVICE SESSION ID
SEND PAGE INFORMATION ACQUISITION REQUEST SIGNAL
SP1023
PERFORM AUTHENTICATION PROCESS BASED ON SERVICE SESSION ID
SP1024
SEND PAGE INFORMATION FOR MUSIC DATA DELIVERY
SP1025
DISPLAY MUSIC DATA DELIVERY PAGE
SP1026

FIG. 17

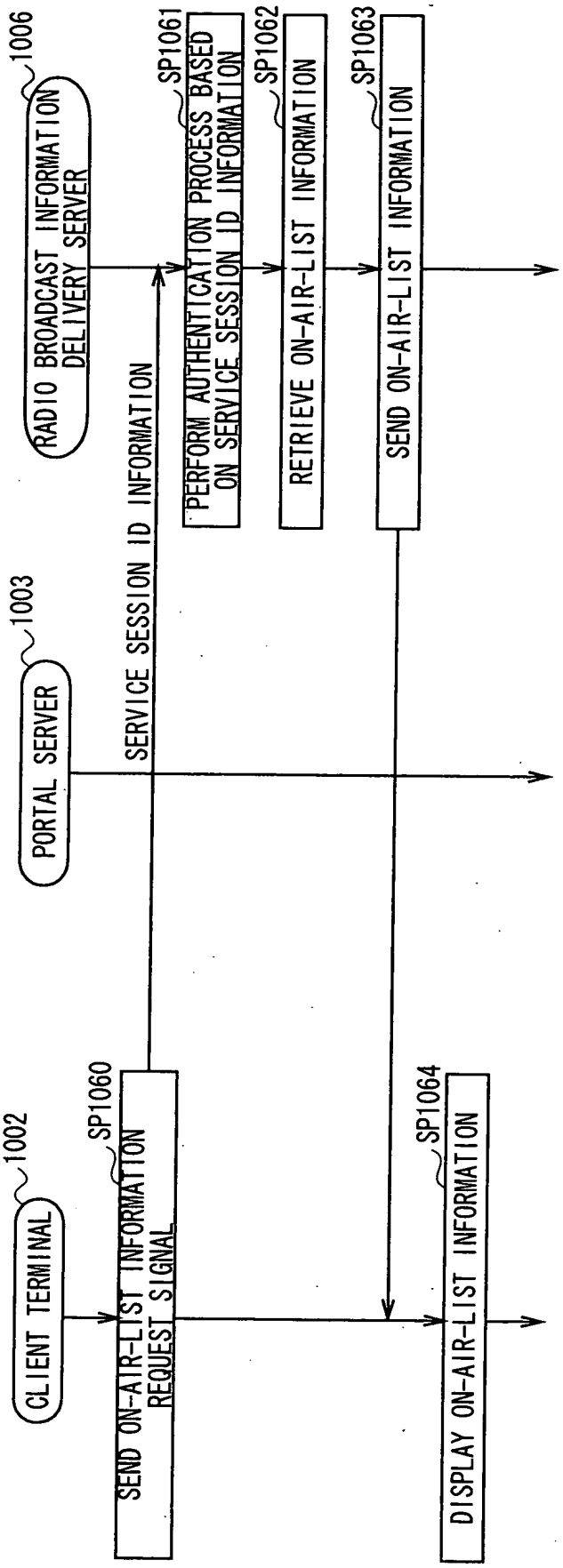
1006
RADIO BROADCAST INFORMATION DELIVERY SERVER
SP1061
PERFORM AUTHENTICATION PROCESS BASED ON SERVICE SESSION ID INFORMATION
SP1062
RETRIEVE ON-AIR-LIST INFORMATION
SP1063
SEND ON-AIR-LIST INFORMATION
1003
PORTAL SERVER
SERVICE SESSION ID INFORMATION
1002
CLIENT TERMINAL
SP1060
SEND ON-AIR-LIST INFORMATION REQUEST SIGNAL
SP1064
DISPLAY ON-AIR-LIST INFORMATION

FIG. 18

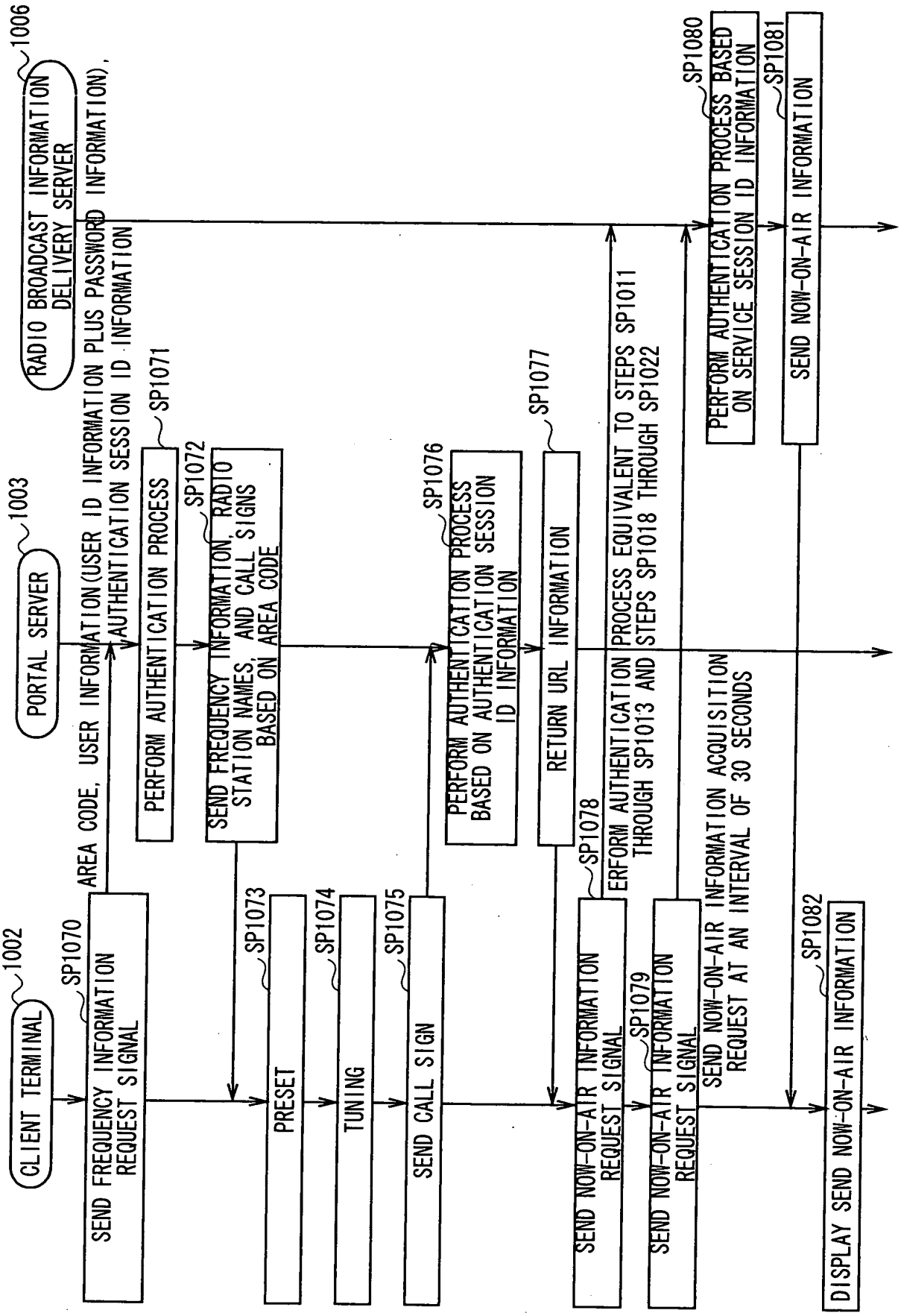
1002
CLIENT TERMINAL
1003
PORTAL SERVER
1006
RADIO BROADCAST INFORMATION DELIVERY SERVER
SP1070
SEND FREQUENCY INFORMATION REQUEST SIGNAL
AREA CODE, USER INFORMATION (USER ID INFORMATION PLUS PASSWORD INFORMATION), AUTHENTICATION SESSION ID INFORMATION
SP1071
PERFORM AUTHENTICATION PROCESS
SP1072
SEND FREQUENCY INFORMATION, RADIO STATION NAMES, AND CALL SIGNS BASED ON AREA CODE
SP1073
PRESET
SP1074
TUNING
SP1075
SEND CALL SIGN
SP1076
PERFORM AUTHENTICATION PROCESS BASED ON AUTHENTICATION SESSION ID INFORMATION
SP1077
RETURN URL INFORMATION
SP1078
SEND NOW-ON-AIR INFORMATION REQUEST SIGNAL
PERFORM AUTHENTICATION PROCESS EQUIVALENT TO STEPS SP1011 THROUGH SP1013 AND STEPS SP1018 THROUGH SP1022
SP1079
SEND NOW-ON-AIR INFORMATION REQUEST SIGNAL
SEND NOW-ON-AIR INFORMATION ACQUISITION REQUEST AT AN INTERVAL OF 30 SECONDS
SP1080
PERFORM AUTHENTICATION PROCESS BASED ON SERVICE SESSION ID INFORMATION
SP1081
SEND NOW-ON-AIR INFORMATION
SP1082
DISPLAY SEND NOW-ON-AIR INFORMATION

FIG. 19

EXPLANATION OF REFERENCE NUMERALS

1...INFORMATION PROVISION SERVER, 2...INTERNET, 3...CLIENT TERMINAL, 1003...PORTAL SERVER, 1006...RADIO BROADCAST INFORMATION PROVISION SERVER, RS...RADIO STATION, KS...ASSOCIATED INFORMATION PROVISION SERVER